IV

GONORRHŒA AS A COMPLICATION IN PREGNANCY, LABOUR AND THE PUERPERIUM*

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THE present communication is based upon the experience acquired from a study of the patients in the Obstetrical V.D. Department of the Royal Free Hospital. It might serve a useful purpose if an account of the management of the patients were given. In the Obstetrical Unit five beds are set apart for the accommodation of women during confinement who are suffering from venereal diseases. These beds are mainly occupied with labour and puerperal cases. A few patients are admitted for antenatal observation when some obstetrical complication has arisen. The patients leave the ward at the end of the puerperium and their V.D. treatment is continued either in the V.D. Out-patient Department or in the V.D. Hostel.

The V.D. Obstetrical Department is isolated in a separate block and has no communication with the maternity wards, entrance being effected by a separate staircase from outside. The department consists of a ward of five beds, a delivery room equipped with instruments, sitz-bath, etc. There is a bathroom, a lavatory with special non-contact seat, sluice room and bed-pan sterilising room. A kitchen and linen room complete the department. The bed pans are disinfected and boiled in a special copper. Each patient has a locker with her own washing basin and bed pan. A wire cage is attached to one of the windows in the ward to enable the babies to be nursed in the open air if so desired.

When a patient comes to the Ante-Natal Clinic and V.D. is suspected she is sent on to the V.D. Department

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for diagnosis and treatment by Dr. Rorke. She remains in attendance until her admission to the hospital, but is seen at intervals by the obstetrical staff in order to observe the progress of the pregnancy. No treatment of venereal diseases is undertaken by the Obstetrical Unit. When the patient enters hospital for her confinement she is under the direct supervision of the second Unit Assistant and the senior District Obstetrical Resident. Only senior students in attendance on district patients are permitted to conduct the labours.

Dr. Rorke pays a consultation visit once a week and superintends the carrying out of all V.D. treatment. On discharge from the ward the patients and their babies return to the V.D. Clinic for further treatment if required. By this means the patients are kept under continuous observation and their infants receive attention from birth. Owing to lack of accommodation now available, cases of sepsis if severe have to be sent to the Infirmary, and also cases of ophthalmia neonatorum to St. Margaret's Hospital. There is an isolation department for sepsis for the general maternity wards, but V.D. patients are not admitted.

The efficiency of the work is in a great measure due to the harmony which has been maintained between the Obstetrical Unit and the V.D. Department, and I feel I owe much to Dr. Rorke and her staff in this respect. This co-operation has now been in existence for nearly seven years since the establishment of the Unit.

A considerable percentage of the patients are primigravidæ and many receive domiciliary antenatal treatment in the V.D. Hostel associated with the hospital. This treatment is efficiently carried out by Sister Noakes under Dr. Rorke's supervision.

Gonorrhœa is always a serious infection in women, but during pregnancy or the puerperium it takes on an added danger as it may become more acute and more extensive.

It complicates pregnancy by the possibility of the occurrence of abortion and increases the risk of infection by means of the pyogenic organisms which may follow it. Lacerations during labour and delivery may give rise to septicæmia, which may end fatally or cause chronic ill-health.

The risk to the infant's eyes is always present, no

matter how energetic the antenatal preventive treatment may be.

In pregnancy the symptoms and signs depend mainly upon the virulence of the attack. It is therefore of importance to have information as to the time of onset of the first infection, whether acquired before pregnancy took place, at the time of impregnation, or subsequently. It is obvious that the more recent the attack, the more acute it is likely to be. Pregnancy, by its increased activity of secretions and vascularity of tissues, favours the growth of the gonococcus, or it may light up an infection which has been latent for some time or even thought to have been completely cured.

The most frequent type of case is that of a chronic discharge from the cervix where treatment has not been given or has been insufficiently carried out. This discharge may have disappeared for some time previous to the onset of the pregnancy. It is obvious that in an old gonorrhœa infection the disease cannot have been of a severe or damaging form, as otherwise sterility would have been the usual consequence.

In the more acute forms, especially among primigravidæ, the infection has probably occurred at the time of impregnation.

Not all cases of pregnancy with a purulent discharge from the cervix are gonorrhœal in origin. Some are due to previous endometrial infection or to intestinal toxæmia associated with the *Bacillus coli*. The possibility of gonorrhœa should, however, be considered in every case, more especially in hospital practice.

Antenatal Supervision.—I do not propose to enter into any description of the methods of diagnosis or treatment for gonorrhœa, as that part of the subject is being dealt with by Dr. Rorke. I only refer to the obstetrical aspect of the question.

Dr. Ballantyne, of Edinburgh, the pioneer of antenatal work, recognised the importance of keeping the expectant mother under medical observation, partly as the result of the great benefit he found to be derived from this supervision in pregnant V.D. cases.

Antenatal treatment of the infected cervix has reduced to a great extent ophthalmia neonatorum.

Gonorrhœa may cause abortion in some cases and also premature births, but its influence in this respect is not

so marked as that of syphilis. As in other cases of pregnancy, the care of the teeth is most important, as caries is liable to produce toxic conditions. Every expectant mother suffering from pyorrhœa or defective teeth should be under the care of a dentist.

Vaginal examinations during pregnancy, if gonorrhœa is present, should not be carried out unless there is some special indication, as, for example, cases of disproportion between the fœtal head and maternal pelvis. Induction of premature labour when decided upon for obstetrical reasons should be undertaken with drugs rather than with instruments, owing to the increased risk from an already infective cervix.

By means of ante-natal treatment labour should be made as safe as possible by the correction of malpresentations in order to avoid lacerations and instrumental interference, with the consequent risks of sepsis.

It has been shown by Doderlein and others that the *Bacillus vaginæ* by its presence raises the local resistance of the vaginal tissues to pathogenic organisms. A somewhat extensive research was carried out by Dr. Charlotte Houlton, assistant in the Unit (*Journal of Obstetrics and Gynæcology of Brit. Emp.*, 1924), upon the bacteriological contents of the cervix and vagina during pregnancy. She confirmed the statement of Doderlein, that there are no pathogenic organisms in the normal vaginal discharge.

Of 98 cases investigated between the twentieth and fortieth week of pregnancy, Dr. Houlton found that the vaginal discharge was normal in 67 cases and pathological in 31. The normal discharge is thin, clear or milky in appearance and acid in reaction. The pathological secretion is profuse, purulent, with varying degrees of acidity or alkalinity. In the majority of the normal cases the *Bacillus vaginæ* and yeast fungi were the sole organisms. In the pathological cases the *Bacilli vaginæ* were diminished or absent, other organisms, mainly staphylococci and streptococci, being present.

In following up the 98 cases throughout labour and the puerperium, of the 67 cases with normal vaginal discharge, 66 had an afebrile puerperium and 1 febrile = 1·5 per cent. Of the 31 pathological cases, the puerperium was afebrile in 27 cases and febrile in 4 = 13 per cent.

Dr. Houlton therefore concluded that in the vaginal discharge of the majority of healthy pregnant women the *Bacilli vaginæ* and yeast fungus are the only organisms present. In a minority of cases with pathological secretions other "suspect" pyogenic organisms are also present. She suggested autogenous vaccines should be administered during the latter weeks of pregnancy as a prophylaxis against sepsis in those cases where organisms are found in the vaginal discharge other than the normal *Bacilli vaginæ*. The use of lactic acid pessaries where some discharge is present gives satisfactory results.

Labour.—During labour the chief centre of infection is the cervix, and as it stretches and dilates the gonococci lying in its folds may reach the surface or travel into the deeper tissues by means of the lacerations which take place. One would expect rigidity of the cervix as a consequence of chronic inflammation, but in our experience this seldom seemed to occur. As a rule the labours, although a very considerable number of cases are primigravidæ, are easier than in the ordinary cases. This may be accounted for by the ante-natal treatment by warm douching, hot sitz-baths, etc., which softens the tissues and render the stages of labour shorter and less painful. The following tables show that in the majority of cases operative interference is rarely required:

CASES OF GONORRHŒA AND PREGNANCY

Total number of cases 324
Cases of gonorrhœa only 288
Cases of gonorrhœa and syphilis 36
(Early abortion in 2 cases of syphilis and gonorrhœa.)
Primiparæ, 254. Multiparæ, 70. Maternal mortality, 0.

—	Cases.	Per cent.
A. Spontaneous labour with normal puerperium . 15 cases with gonorrhœa and syphilis.	197	61·1
B. Spontaneous labour with pyrexia in puerperium 8 cases with gonorrhœa and syphilis.	73	22·7

—	Cases.	Per cent.
C. Complicated labour with normal puerperium . 18 cases of forceps (1 had eclampsia). 8 cases of P.P.H. (4 syphilitic). 3 cases of retained placenta and manual removals (1 syphilitic). 1 case of placenta prævia. 1 case of A.P.H. 5 cases with syphilis and gonorrhœa.	31	9·6
D. Complicated labour with pyrexia . . . 9 cases of forceps. 7 cases of P.P.H. (6 syphilic). 1 case of retained placenta and manual removal. 1 case of placenta prævia. 2 cases of heart disease (C.S.I.). 1 case of A.P.H. 1 case of prolapsed cord and version. 6 cases with syphilis and gonorrhœa.	21	6·5
E. Induction of labour (all P.) . . . . 6 normal puerperium (1 febrile). 4 cases cont. pelvis 38th week. 1 case cont. pelvis 37th week (still-birth). 1 case pre-eclamptic 34th week. 1 case post-mature (dead-born).	7	—
F. No cases of craniotomy	—	—

ANALYSIS OF CASES OF PYREXIA

	Cases.
(*a*) *Sapræmia*	20
Temperature raised for several days. Left hospital well. 18 prim., 2 mult., 19 spont. 1 forceps (heart). 5 were syphilitic. Retention of chorion in most cases.	
(*b*) *Septicæmia*	5
1 induction. 1 retained placenta. 1 Cæsarean section. 2 cause unknown. 2 of these were acute and sent to Infirmary.	

	Cases.
(*c*) *Cystitis*	37
B.C.C., 33.	
2 had forceps.	
1 eclampsia.	
1 Cæsarean section.	
4 streptococcus.	
9 syphilitic	
(*d*) *Breast Complications*	19
Flushed breasts, 4.	
Sore nipples, 4.	
Mastitis, 7.	
Breast abscess, 4.	
All were primiparæ.	

There were a number of other cases with complicated labours and pyrexia. Of these the most important from the point of view of this paper were two cases of Cæsarean section, both primiparæ—one patient had mitral stenosis and the other was a placenta prævia—and one case of eclampsia, also a primiparæ. The eclamptic case had six fits; forceps were used at delivery and the fœtus was still-born. In no cases of gonorrhœa or gonorrhœa and syphilis in the R.F.H. for the last seven years have any maternal deaths occurred.

INFANTS OF MOTHERS WITH SYPHILIS AND GONORRHŒA

—	Nos.	Per cent.
Total number of cases delivered	34	—
24 babies satis. spont. deliveries		85·3
5 ophthalmia neonatorum, spont. deliveries		alive.
1 still-birth		
2 macerated	—	14·7
2 died (1 one minute after birth)		
(1 premature)		

INFANTS.

—	Cases.	Per cent.
Number of deliveries	324	—
(*a*) Satisfactory and born at term (24 of whom syphilis and gonorrhœa) (2 sets of twins)	253	78·1
14 had various complications, but satisfactory.		
2 infants had mastitis (syphilis and gonorrhœa).		
2 infants had spina bifida.		
8 infants had sore buttocks.		

INFANTS—*continued.*

—	Cases.	Per cent.
2 infants had intestinal hæmorrhage. 1 infant had talipes (syphilis and gonorrhœa).		
(*b*) Satisfactory and premature . . .	31	9·5
(*c*) Ophthalmia neonatorum (sent to St. Margaret's Hospital) (5 syphilis and gonorrhœa)	17	5·2
(*d*) " Sticky eyes " or discharging eyes . .	5	1·6
Total sent out alive . .	306	94·4
(*e*) Still-born (1 syphilis and gonorrhœa) .	8	2·5
1 premature, forceps. 1 premature, breech (pre-eclamptic and syphilis). 1 forceps (4 days in labour). 1 eclamptic (manual rotation, forceps). 4 spontaneous labours (cause of death unknown).		
(*f*) Macerated (2 syphilis and gonorrhœa) .	3	0·9
1 M. had œdema and albuminuria and syphilis. 1 M. had phlebitis and syphilis. 1 cause unknown.		
(*g*) Neonatal deaths (2 syphilis and gonorrhœa)	6	1·8
1 intracranial injuries after forceps 2nd day. 1 meningitis 3rd week. 1 12th day. No P.M. premature. 1 microcephalus and deformities 6th day. 1 prematurity 36th week—5th day (syphilis and gonorrhœa). 1 prematurity 36th week—few days (syphilis and gonorrhœa).		
(*h*) Dead-born—post-mature . . .	1	0·3
Total of (*e*)—(*h*) . . .	18	5·5

It is our practice to avoid vaginal examinations as much as possible. Rectal examinations were substituted for a period, but seemed to make no improvement in the results of the prevention of sepsis. Forceps applications cause lacerations and increase the risk of sepsis. When

the protective squamous epithelium is denuded, organisms enter the deeper tissues and take on a virulent character. It is necessary to examine each case carefully with a speculum if lacerations are suspected and suturing must be carried out. Cervical lacerations are more serious than perineal tears. Attention to these details prevents future pelvic discomfort and ill-health.

In the two cases where Cæsarean section had to be performed, the risk of sepsis required special consideration beforehand. If a child is alive it is always our practice to avoid craniotomy. In the case of an infected cervic with serious obstetrical complications, such as placenta prævia or contracted pelvis, it is sometimes a greater risk to drag the fœtal head through the pelvis than to perform Cæsarean section. In cases of contracted pelvis, labour should be in progress before the operation is performed, as drainage is more satisfactory. Careful disinfection of the vagina is essential. A tampon of acriflavine (1 in 2,000) may be applied to the vagina before operation. Delivery of the placenta through the vagina prevents infection of the uterine and peritoneal wounds.

During the *third* stage of labour vigorous massage of the uterus is to be condemned. The membranes dip into the vagina and rise and descend with the relaxation and contraction of the uterus, and there is a risk of sucking up infection. This is increased if the uterus is manually pushed downwards. It is safer not to handle the uterus, but merely to keep a hand lightly on the fundus. P.P.H. occurs occasionally, but is more marked in syphilitic cases.

Exploration of the uterus for retained placenta or pieces of placenta should be avoided whenever possible owing to the risk of sepsis.

In the puerperium, as one would expect, there is a higher percentage of cases of pyrexia than among ordinary cases. This is due to the spread of infection upwards to the placenta site. Sapræmia is not infrequent, but soon subsides if there is no growth of pyogenic organisms. The gonococcus is rarely found in the blood stream, the usual infective agent being the hæmolytic streptococcus.

Treatment.—It is often a matter of surprise how quickly acute and extensive cases of gonorrhœal infection subside after treatment during pregnancy and how many of these have a perfectly afebrile puerperium. The preven-

tion and treatment of pyogenic infection in the puerperium is carried out by means of as much fresh air as possible and free drainage of the uterus by posture. If drainage is defective, glycerine drainage modified on the method of Dr. Remington Hobbs for pelvic sepsis is most satisfactory in its results. When the blood stream is involved, anti-streptococcic serum in 25, 30 or 40 c.c. doses is given once daily until the condition shows improvement. Intramuscular injections of quinine (hyd. gr. 5 to 10) is also given daily.

Douching, or curettage of the uterus by the finger, has been given up. Exploration for pieces of placenta may be necessary in some cases, but only should be done after the resistance of the patient is raised by the means already indicated. The round cell barrier of defence in the uterine wall should never be removed by intrauterine manipulations.

In cases of offensive discharge, low pressure vaginal douches and sitz-baths are of benefit.

Balconies and open-air wards should be provided for the treatment of all cases of puerperal sepsis, and this treatment should be carried out by those physicians who have been in attendance during labour and the puerperium.